

StageSmarts Xi24

User Manual

StageSmarts

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Safety information

Warning! ***Read the following important safety information before connecting or using the StageSmarts Xi series unit. If you are in any doubt about how to use the unit safely or about the information in this user manual, contact StageSmarts for advice before applying power to the unit.***

The following symbols are used to identify important safety information in this user manual:



Warning! Safety hazard. Risk of severe injury or death.



Warning! Hazardous voltage. Risk of lethal or severe electric shock.



Warning! See user manual for important safety information.



Warning! Fire hazard.

Follow the safety precautions listed below and observe all warnings in this user manual and printed on the StageSmarts Xi series unit. Keep this manual for future use. Before connecting or using the Xi series unit, visit the StageSmarts website at http://www.stagesmarts.com and make sure that you have the latest user documentation for the unit.

The Xi24 must be used only by professional persons with technical training and a thorough understanding of power distribution systems and their potential hazards. The unit presents risks of severe or lethal electric shock, physical injury or fire.

Respect all locally applicable laws, codes and regulations when operating the Xi series unit.

Do not attempt to carry out any repairs on the Xi series unit. Refer all repairs and any service operation not described in this manual to StageSmarts or one of its authorized service partners. Do not try to carry out any repairs or unauthorized service yourself, as doing so may involve serious or lethal safety hazards. It may also cause damage or malfunction and may void your product warranty.

Do not try to modify the Xi series unit in any way not described in this user manual. Connect and operate the Xi series unit only as directed in this user manual, or you may create a serious or lethal safety hazard. You may also cause damage that is not covered by product warranties.



Electrical safety

- Do not expose the Xi series unit to moisture or allow it to become wet. Do not use or store the Xi series unit outdoors or in wet conditions.
- Use the Xi series unit only in a location that is inaccessible to members of the public.

- Display notices with recognized warning symbols such as the ones used in this user manual around the Xi series unit and the rest of the installation to give sufficient warning of the presence of high-voltage electrical hazards.
- Ensure that the Xi series unit is electrically connected as described in this user manual to a protective earth (ground) that has been tested and complies with BS 7909, EN 50110-1 or the local equivalent standard for temporary electrical installations.
- Use only a source of AC power that complies with local electrical codes and has overload protection.
- Make sure that all cables used for power input, throughput and output are of a suitable type for their application and have suitable electrical ratings for their load. Use only power cables that comply with BS 7909 or the local equivalent standard for temporary electrical installations.
- Before using the Xi series unit, check that all connectors are correctly engaged. If connectors have a locking mechanism, check that they are correctly locked.
- Before using the Xi series unit – and at regular intervals – check that all power distribution equipment and cables are in perfect condition. Isolate the fixture from power immediately if any circuit breaker, cable, connector or other component appears to be damaged, defective, deformed, wet or showing signs of overheating. Contact StageSmarts for advice on having repairs carried out. Do not reapply power until repairs have been completed.
- Test the earth leakage protection on all outputs at least once per month as a scheduled safety routine.
- Test all temporary electrical installations on site immediately after assembly on site. Test installations at shows, exhibitions and similar events in accordance with IEC 60364-6-61.



Fire safety

- Ensure that there is free and unobstructed airflow around the Xi series unit. Provide a minimum clearance of 100 mm (4 in.) around all air vents.
- Do not use the Xi series unit if the ambient temperature exceeds 45° C.
- Keep flammable materials well away from the unit.
- Do not modify the Xi series unit in any way that is not described in this user manual.
- Do not install any parts in the Xi series unit that are not supplied or authorized by StageSmarts.



Physical safety

- Observe all locally applicable workplace safety regulations.
- Use the Xi series unit only when securely mounted.

Introduction

The Xi24 from StageSmarts is a professional power distribution unit for fixed installation that represents the latest in event power distribution and is designed and manufactured to meet the latest EN norms and the highest standards.

The Xi24 unit uses industrial grade (EN 60947-2) circuit breakers and are designed to withstand dusty conditions. All circuit breakers are of the magnetic-hydraulic type, offering temperature-stable operation and superior reliability.

All internal circuits use halogen-free wiring and crimped or screwed connections.

Xi24

The Xi24 has the following specification:

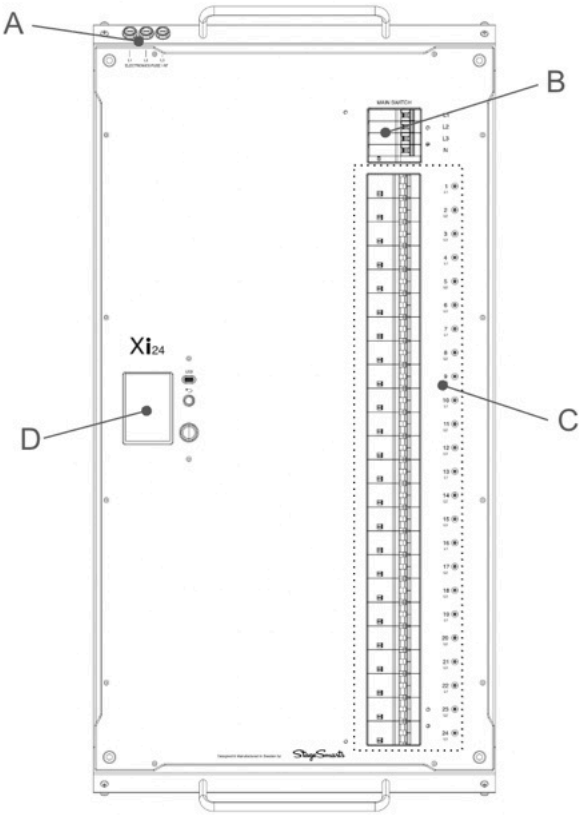
	Xi24
Main output channels	24
Output channels sensor option	Yes
Output channel relay option	Yes
GPIO option	Yes (4 out, 2 in)
Independent Ethernet ports	2
Standard output RCBO options	10A/30mA 13A/30mA 16A/30mA
Input monitoring and protection	Over-voltage, under-voltage, and N-to-PE overvoltage with transient options.

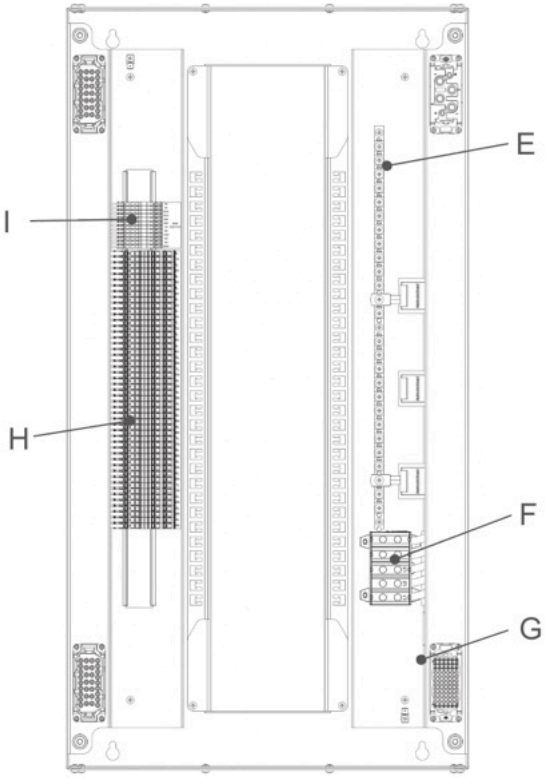
Preparing for use

Before you begin using the Xi24:

- Read the safety information section of this user manual.
- Make sure that professionals working at the site will have good knowledge of the operation of the unit.
- Ensure proper mounting of the unit.

Overview Xi24





Key

A	Main electronics fuses	E	PE busbar
B	Main switch disconnector	F	Mains input (L1, L2, L3, N, PE)
C	Output breakers and monitor	G	Ethernet ports
D	Graphical user interface	H	Output 1-24 (L, N) 4mm^2 quick connect
		I	GPIO 1.5mm^2 quick connect

Emergency Stop

The Xi24 does not have an emergency stop button directly on the unit itself. If emergency stop is needed, this is available via the optional GPIO module as a normally closed loop. Trigging the e-stop trips the switch disconnector immediately, shutting down power to all of the unit's outputs. For more information about this, see the GPIO section.

To reapply power after an emergency stop:

1. Make sure that the installation is in a safe condition and that reapplying power presents no hazard.
2. Release the Emergency Stop button to reset it.
3. Move the main switch disconnector to the ON position.

Protective Earth bonding

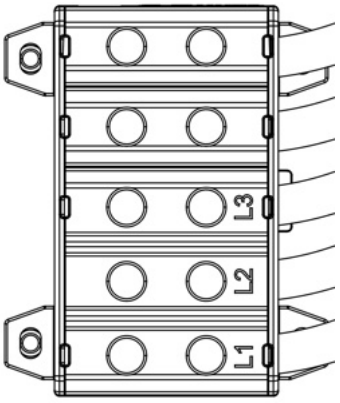


Warning! Connect the PE terminal as directed below before applying power to the Xi24 unit.

The Xi24 units have a PE (Protective Earth) terminal as part of the mains input.

Before applying power to the Xi series unit, make the following connections to the PE bonding terminal:

- Connect the PE bonding terminal to an electrical earth (ground) that has been tested and complies with the local electrical code.
- Connect the PE bonding terminal to the equipotential bonding link that interconnects conductive materials in the installation (equipotential bonding is a legal requirement in some regions and is recommended in all cases to reduce the risk of electric shock).



Main switch disconnector

The Xi24 units have a 4-pole (three Phases + Neutral) switch disconnector that can be used as a power ON/OFF switch to shut down power at all of the outputs. The MCCB is rated to 70A.

Important! Check that all loads are switched off before shutting down or applying power at the switch disconnector.

The switch disconnector trips automatically in the following situations:

- Loss of Neutral line at the power input connector (if enabled).
- Over- or undervoltage at the power input connector (if enabled).
- Activation of the Emergency Stop.

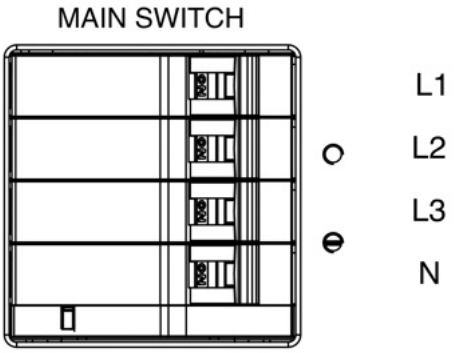


Figure: Main circuit breaker

Protection in case of loss of Neutral

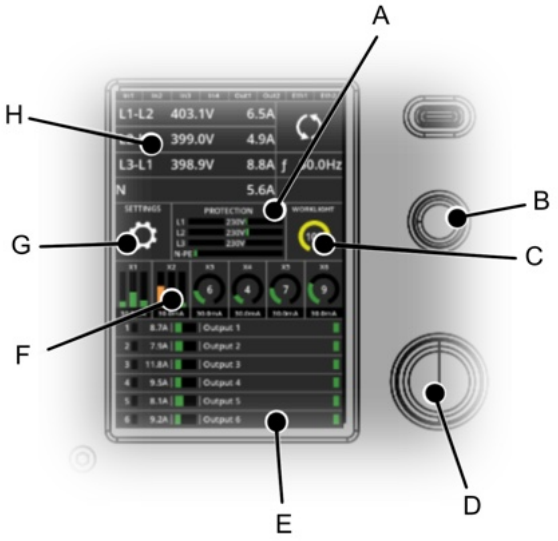
Loss of the Neutral line at the power input connector is a potentially disastrous situation since it causes Phase line voltages to move away rapidly from their nominal 230 V. This usually results in serious damage to a large portion of the connected equipment.

The Xi24 has a protection device that immediately trips the switch disconnector in case of a lost Neutral line.

If the switch disconnector trips because of a lost Neutral line, a full inspection of the wiring from the power source to the Xi series unit must be performed and the fault must be corrected before the switch disconnector is moved to the ON position. Inspection and repair must be undertaken by a qualified electrician only. If no fault is found in the power source or source wiring but the switch disconnector still trips, contact StageSmarts for assistance.

Graphical user interface

The Xi24 has a touch screen graphical user interface that both gives an overview of the device status, such as input voltages and currents, output load and leakage currents, etc, as well as allowing for configuration of the unit.



Key

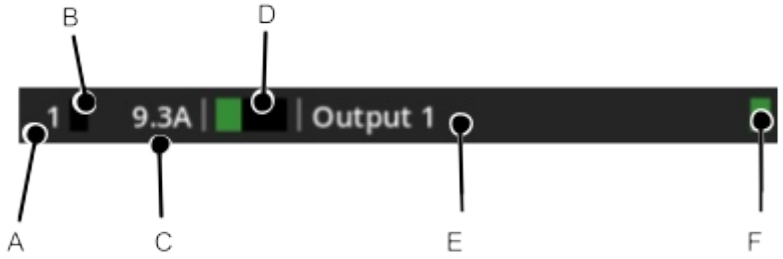
A	Protection module data	E	Standard output channels data
B	Return button	F	X-slot output channels data
C	Worklight intensity	G	Settings menu button
D	Control knob	H	Mains input meter data

In the base screen of the GUI, pressing the control knob toggles focus between Worklight intensity and scrolling the output channel list.

Making settings

It is possible to make settings of the Xi device in the GUI.
To make general settings such as network settings, indicator, settings, etc, go into the Settings menu available directly from the front page.
For settings related to specific sub-systems such as protection module, etc press the widget for the desired sub-system and available settings will be shown.

Standard channel monitoring

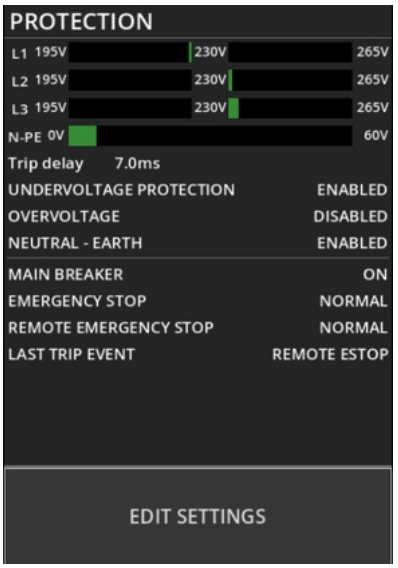


Key

A	Output channel number	D	Output leakage (0-30mA)
B	Output load warning indicator	E	Channel name
C	Output load (A)	F	Relay status

Configuring protection module

Pressing the Protection display on the base screen brings up the Protection module menu. Here it is possible to see and change the settings for overvoltage protection, undervoltage protection, and other settings related to loss of neutral protection.



Output monitoring and breakers on the front panel

Each one of the standard output channels (1-24) is protected by a 2-pole RCBO (combined overcurrent and earth leakage circuit breaker) on the front panel. The breakers are labelled to match the output numbers.

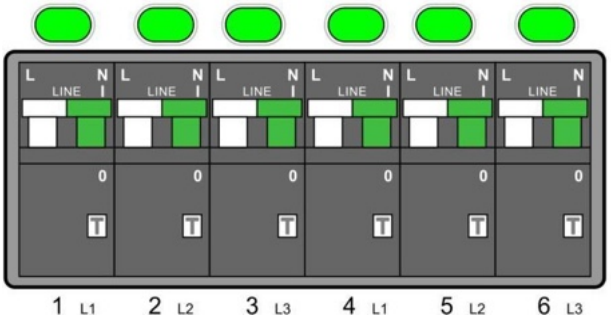


Figure: Output circuit breakers group

Each breaker has a trip current of 16A, 13A or 10A depending on the specification of the unit. Breaker 1 will trip if the current draw at Output 1 exceeds the limit, and so on.

Because all the breakers are magnetic-hydraulic type, the outputs can be loaded at full (16A, 13A or 10A) capacity indefinitely and at all permissible operating temperatures. You do not need to factor in ambient temperature etc. and add a ‘safety margin’ to avoid nuisance tripping.

Any issues with earth leakage currents will only affect the output where there is earth leakage, not a group of outputs. All RCBOs for the standard outputs have a 30mA trip current for residual currents.

Outputs

The Xi24 has 24 monitored main outputs labelled 1-24. The main output terminals are situated on the rear mounting plate and are of quick connect type that can interface with up to 4mm^2 cables.

Output load sensor LEDs

Above each breaker on the front panel is an indicator LED. The LEDs light to indicate the presence of a connected load on that breaker’s output:

- If the load is within the ampere rating for the output, the LED lights green.
- If a slight overload is detected, the LED flashes red slowly.
- If a serious overload is detected, the LED flashes red quickly.

If the overload exceeds the safety limit for that output, the breaker trips.

Output RCBO test buttons

Each breaker on the front panel has a test button labelled **T** that lets you test earth leakage protection on that breaker’s output. A momentary push on the test button should immediately trip the breaker. Use the test buttons to make sure that earth leakage protection operates correctly each time you connect a load to an output. Test earth leakage protection on all outputs frequently – we recommend a check at least once per month – as a scheduled safety routine.

If at any time you press a breaker's test button while power is applied to the breaker and the breaker does not trip immediately, stop using that output. Have the Xi series unit inspected and serviced StageSmarts or an authorized StageSmarts service agent as soon as possible. Do not use the output until the problem has been resolved.

Electronics fuses

Important! Remove the three fuses L1, L2 and L3 at the rear mains input panel before performing a high-voltage insulation test.

Three 1 AT (slow-blow) fuses L1, L2 and L3 are located in fuseholders at the top of the front panel. Each fuse protects one of the three phases going to the unit's internal measurement and monitoring hardware.

If you have no voltage detected on the unit's main meter but you know that the Xi series unit is connected to power and there is voltage on that phase, that fuse may have blown. To replace the meter fuse:

- Set the main MCCB to OFF and then open the fuseholder cap with a flat-bladed screwdriver.
- Replace the fuse with a new one of the same type and rating.
- Reinstall the fuseholder cap and then set the main MCBB to ON.

If the unit still does not detect all three phases, the new fuse that you have just installed may have blown. Remove the fuse and test it for continuity to confirm whether it has blown again. A fuse that blows repeatedly indicates a problem. There may be overvoltage at a power input connector, or there may be a wiring fault. Disconnect the Xi series unit from power and investigate the problem. If you suspect that a Xi series unit may be faulty, stop using it immediately and contact StageSmarts or an authorized dealer for assistance.

Ethernet interfaces

The Xi24 have two independent Ethernet interfaces on the rear panel. The two interfaces can be configured to operate at separate networks, for instance if there is one dedicated control network and one monitoring/admin network.
Both interfaces uses standard RJ45 connectors for use with Cat5e or Cat6 cables.

Network settings

The Xi series products has two network interfaces, and they are configured individually. The following settings can be done per port;

- Dynamic IP assignment via DHCP
- Static IP configuration
    - IP address
    - Netmask
    - Gateway
    - DNS server

When DHCP is used, the unit will fall back to using the following network addresses if DHCP assignment fails: 172.30.1.3 (interface N1), 172.30.2.3 (interface N2)

Remote monitoring with Ampacity

Ampacity is StageSmarts remote monitoring and configuration tool that can be run on Windows or macOS computers. It lets you monitor entire systems from one or several computers. For more information on Ampacity software, visit StageSmarts' website at www.stagesmarts.com

Using Streaming ACN or ArtNet

The Xr series unit can receive control data from a controller supporting *ANSI E1.31 - Lightweight streaming protocol for transport of DMX512 using ACN*, or simply *Streaming ACN*, or *sACN* in short as well as controllers supporting the Art-Net protocol.
If the Xr series unit is equipped with the optional relay modules, simply set the desired sACN or Art-Net universe and the DMX start address to control the outputs from for instance the console. Both protocols can be configured individually, and enabled for the two network interfaces individually.

For controlling relays, the following DMX slot values applies:

DMX value	Function
0-9	Dead zone (no action)
10-123	Relay off
124-132	Dead zone (no action)
133-245	Relay on
246-255	Dead zone (no action)

The Xr series units can receive sACN/Art-Net data from multiple controllers at once. If there is more than one source of data the source is selected based on the priority of the source (Art-Net sources counts as priority 100). On equal priority data from the sources is merged with LTP (latest change takes precedence).

Battery backup

If the unit is equipped with the built-in backup battery there will be a BATTERY option in the Settings menu. Here it is possible to configure the backup battery.
If the battery backup is enabled in the settings, you can select the desired runtime from the battery before the unit shuts down. This defaults to 10 minutes, but can be configured to be shorter.
Operation from the backup battery allows your X-series unit to keep communicating over the network, so that errors and notification can be monitored in case of a power-loss to the PDU.

Relay settings

The relays, if installed, can be configured to start in different modes, and can be automatically sequenced to start loads at different times to even out in-rush currents for instance.

Sequences

Relay sequences are separate command chains that turn relays on or off at configured relative times. There can be multiple sequences in a unit. Sequences can be triggered either via GPIO inputs, or can be used as power-on sequences or fail-safe sequences (see further information below).

Power-on settings

Power-on states

The power-on state is set as soon as the unit powers on, each relay channel can be configured to any of the following three modes;

- **ON:** relay starts in an on position
- **OFF:** relay starts in an off position
- **RECALL:** relay remembers the last control command and will start in that state

Power-on sequence

A power-on sequence is executed after the initial power-on state initialization. It starts executing only if the main breaker is on. If the main breaker is tripped or off, the power-on sequence starts after the breaker is switched on.

Mains power fail behaviour

It is possible to configure if the unit shall restart the power-on states and sequence in case of a mains power failure - either incoming power (if battery backup is enabled), or in case of a trip of the MCCB.
This behavior is particularly useful in cases where the loads create high in-rush current when they are turned on.

Fail-safe settings

It is possible to configure, independently from the power-on behaviour, how the relay shall behave in case of an internal PDU error that prevents the unit's central controller from communicating with the relays. This is called failsafe behaviour. For instance, you might want to configure relays to turn on in this case to allow the PDU to still behave as a traditional non-smart PDU. The failsafe behaviour is activated after 120 seconds of continuous failure state.

GPIO (General Purpose Input / Output)

The Xi24 has an optional GPIO module that can be programmed to trigger relay actions on up to four input signals and to indicate statuses and events on the two outputs. The GPIO module also provides the possibility for an external remote E-stop loop.

Connector pinout

Pin	Name	Description
1	R_ESTOP_A	Remote E-stop loop
2	R_ESTOP_B	Remote E-stop loop
3	OUT1_A	Output 1
4	OUT1_B	Output 1
5	OUT2_A	Output 2
6	OUT2_B	Output 2
7	IN1_A	Input 1 anode (+)
8	IN2_A	Input 2 anode (+)
9	IN1/2_K	Input 1/2 common cathode (-)
10	IN3_A	Input 4 anode (+)
11	IN4_A	Input 3 anode (+)
12	IN3/4_K	Input 3/4 common cathode (-)

Remote E-stop

When Remote E-stop is disabled in the settings, the GPIO module has an internal loopback enabled. When the Remote E-stop is enabled the loop between pin 1 and 2 shall be normally closed. E-stop buttons shall break this loop.
E-stop will be triggered whenever this loop is broken, meaning that if the cable is disconnected it is not possible to engage the main breaker.

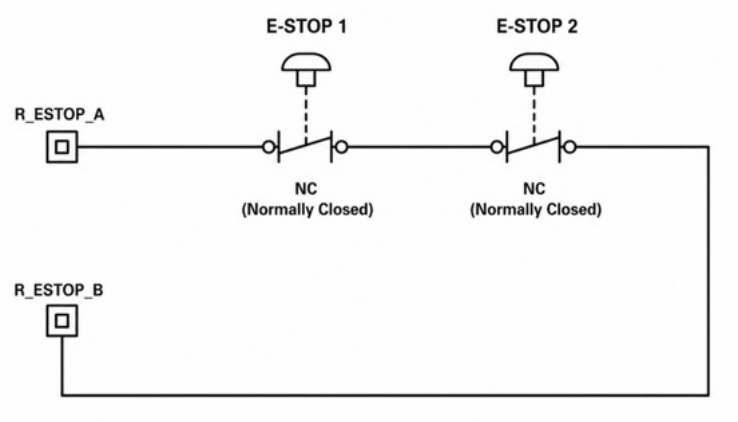


Figure: Example remote e-stop loop

Outputs

The outputs are solid state relays between A and B pins for each output. When output is active the relay is closed. **Note: Voltage must not exceed 30V.**

Each output can be controlled from one or more internal status sources. These can be combined in different ways though boolean logic.

Each selected source is OR:ed together. For example: *Out1 = N1 Link **OR** N2 Link*
By using inverting the signals it is possible create AND function, for example:
*Out1 = **INVERT**(**INVERT**(N1 Link) **OR INVERT**(N2 Link))* is equal to *Out1 = N1 Link **AND** N2 Link*

As boolean logic can be complex sometimes, StageSmarts support can help in creating the logic functions you need in your application.



Figure: Output configuration screen

Inputs

The inputs accept a voltage of **12-24V DC**. The edge event of the signal will trigger relay actions (on or off) as set up in the input's settings. It is possible to have any number of the Xi unit's relays connected to an input.



Figure: Input configuration screen

Safety checks and maintenance

Carry out the following scheduled safety tasks at these suggested intervals:

- Monthly: Check the correct operation of the RCBOs for outputs on the front panel by pressing the test button and the RCMs for X-slot outputs by pressing their software test buttons. Power shall be applied to the Xi series unit when performing the test. Check that pressing the Test button causes the breakers to trip immediately.
- Regularly: Check all components, connectors and cables for signs of damage or overheating.

Important: Inspect the air vents at regular intervals. If you see signs of dirt or dust buildup, clean the vents with a soft brush and vacuum cleaner.

Compliance information

The Xi series of products complies with all relevant EU Directives. A full Declaration of Conformity is available upon request from the manufacturer.





StageSmarts

December 18, 2025

EU Declaration of Conformity

We, StageSmarts AB, as the manufacturer, hereby declare that Xr series (Xr24, Xr48) complies with the following directives;

2014/30/EU *Directive of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility.*
2014/35/EU *Directive of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits.*
2011/65/EU *Directive of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment + **2015/863/EU** Delegated Directive of 31 March 2015 amending Annex II to Directive 2011/65/EU*

The conformance of the products stated above with the provisions of the applied directives is demonstrated by compliance with the following standards;

EN IEC 61000-6-2:2019 *Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity standard for industrial environments*
EN IEC 61000-6-4:2019 *Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments*
EN IEC 61439-1:2021/AC1:2022 *Low-voltage switchgear and controlgear assemblies - Part 1: General rules*
EN 61439-4:2013 *Low-voltage switchgear and controlgear assemblies - Part 4: Particular requirements for assemblies for construction sites (ACS)*

This declaration of conformity is issued under the sole responsibility of the manufacturer.

On behalf of StageSmarts AB:
Malmö, 2025-12-18

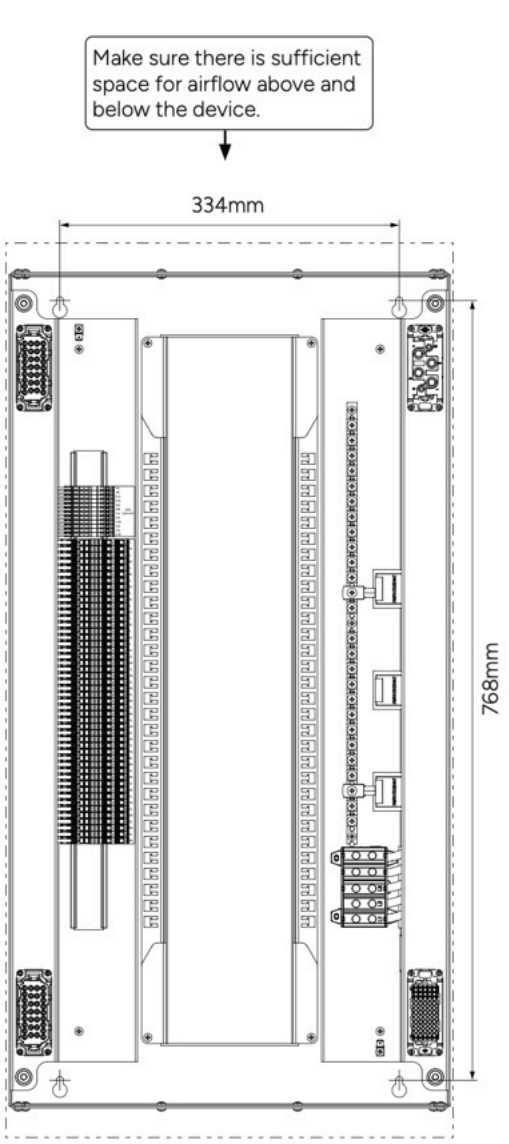
Fredrik Cedmert
CEO

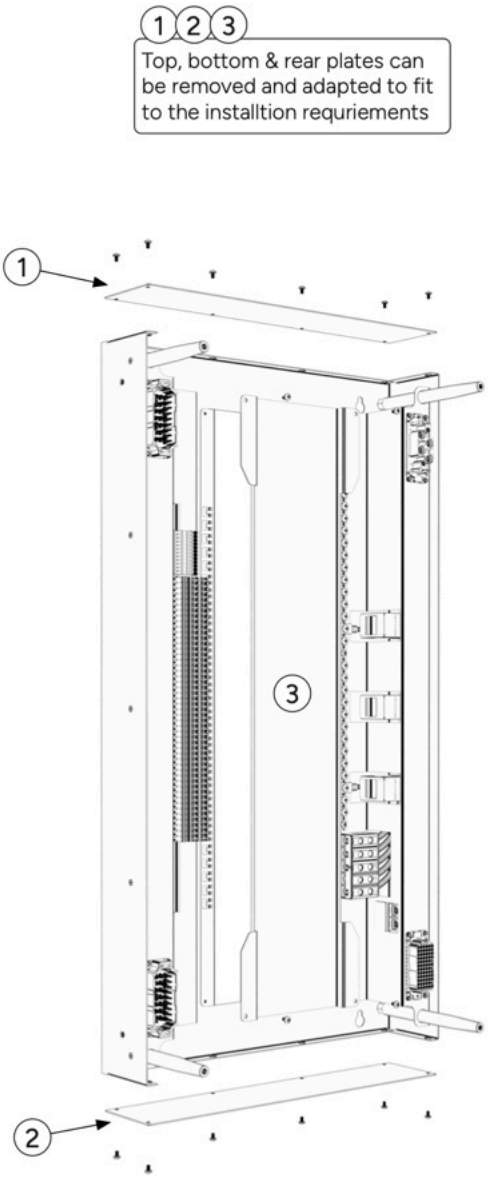
[DQCE-G000162] EU Declaration of Conformity for Xr series

Mounting instruction

Hazardous voltage. Will cause death or serious injury.
Turn off and lock out all power supplying this device before working on this device.
Installation and maintenance must be carried out by qualified personnel.

This device must be installed on a flat surface or other structure providing a flat base to prevent warping of the device. Warping will impact the functionality of the connections between the front and rear part of the device.





StageSmarts